

## CLAIM AMENDMENTS

1           1. (Original) Apparatus for filling bags (1) with loose  
2 material (2), comprising a tube (210) for supplying the material  
3 (2), substantially coaxial with the said bag (1), characterized in  
4 that said tube (210) is able to move from a position with the  
5 supply mouth (210a) outside that bag to a position with the supply  
6 mouth (210a) inside the bag (1) and arranged at a height  
7 substantially coinciding with the bottom (1b) of the bag (1) where  
8 filling is started, and vice versa.

1           2. (Original) Apparatus according to Claim 1,  
2 characterized in that it comprises means (112) for retaining the  
3 bag (1) at a fixed height.

1           3, (original) Apparatus according to Claim 1,  
2 characterized in that the top end of the tube (210) is integral  
3 with a hopper (211) containing the product (2).

1           4. (Original) Apparatus according to Claim 1,  
2 characterized in that it comprises means for displaceably actuating  
3 it in both directions along a vertical axis (Z).

1           5. (Original) Apparatus according to Claim 4,  
2 characterized in that said actuating means (200) consist of a motor

3 (231) connected, by means of transmission means, to a frame (232)  
4 integral with the hopper (211).

1 6. (Original) Apparatus according to Claim 5,  
2 characterized in that said means (230) for displaceably actuating  
3 the frame (232) are of the variable/controllable speed type.

1 7. (Original) Apparatus according to Claim 1,  
2 characterized in that it comprises means for weighing the product  
3 (2).

1 8. (Original) Apparatus according to Claim 7,  
2 characterized in that said means for weighing the product (2) are  
3 arranged upstream of the said supply tube (210).

1 9. (Original) Apparatus according to Claim 1,  
2 characterized in that it comprises means (500) for weighing the bag  
3 (1) during filling.

1 10. (Original) Apparatus according to Claim 9,  
2 characterized in that said weighing means (500) consist of load  
3 sensors (501) connected to the bag retaining means (112).

1 11. (Original) Apparatus according to Claim 1,  
2 characterized in that the mouth (210a) supplying the product (2) is

3 equipped with rotating plates (210b) able to be arranged  
4 transversely with respect to the mouth (210a) of the tube, so as to  
5 cause closing thereof, and, parallel thereto, so as to cause  
6 opening thereof.

1 12. (Original) Apparatus according to Claim 1,  
2 characterized in that it comprises means (240) for measuring the  
3 volume of the product (2) to be introduced into the bag (1).

1 13. (Original) Apparatus according to Claim 12,  
2 characterized in that said volume measuring means consist of a  
3 feeder screw (240) coaxially arranged inside the tube (210) and  
4 able to convey measured quantities of product (2) from the hopper  
5 (211) to the bottom (1b) of the bag.

1 14. (Original) Apparatus according to Claim 13,  
2 characterized in that said feeder screw (240) is associated with  
3 variable speed actuating means with a system for control thereof.

1 15. (Original) Apparatus according to Claim 1,  
2 characterized in that it is associated with air and dust suction  
3 means (300).

1 16. (Original) Apparatus according to Claim 15,  
2 characterized in that said suction means consist of longitudinal  
3 ducts (310) arranged in a diametral position with respect to the

4 tube (210) and extending substantially along the whole axial length  
5 of the said tube.

1 17. (Original) Apparatus according to Claim 1,  
2 characterized in that it comprises deaeration means consisting of a  
3 plurality of pipes (1311), the bottom end part (1311a) of which is  
4 hinged with pins (1311b) able to allow expansion thereof in the  
5 transverse direction, by an amount corresponding to the width of  
6 the bag.

1 18. (Original) Machine for filling bags (1) with loose  
2 material (2), comprising at least one filling station (R) where  
3 there is a filling apparatus (200) comprising a tube (210) for  
4 supplying the material, substantially coaxial with the said bag  
5 (1), characterized in that said tube (210) is able to move from a  
6 rest position with the supply mouth (210a) outside the bag (1) to a  
7 position with the supply mouth (210a) inside the bag and at a  
8 height substantially corresponding to that of the bottom (1b) of  
9 the bag (1) where filling is started, and vice versa.

1 19. (Original) Machine according to Claim 18,  
2 characterized in that it comprises means (112) for retaining the  
3 bag (1) at a fixed height.

1           20. (Original) Machine according to Claim 18,  
2     characterized in that the top end of the tube (210) is integral  
3     with a hopper (211) containing the product (2).

1           21. (Original) Machine according to Claim 18,  
2     characterized in that it comprises means (230) for displaceably  
3     actuating the filling apparatus in both directions along a vertical  
4     axis (Z).

1           22. (Original) Machine according to Claim 21,  
2     characterized in that said means (230) for displaceably actuating  
3     the filling apparatus consist of a motor (231) connected, by means  
4     of transmission means, to a frame (232) integral with the hopper  
5     (211).

1           23. (Original) Machine according to Claim 21,  
2     characterized in that said means (230) for actuating the frame  
3     (232) are of the variable/controllable speed type.

1           24. (Original) Machine according to Claim 18,  
2     characterized in that it comprises means for weighing the product  
3     (2).

1           25. (Original) Machine according to Claim 24,  
2     characterized in that said means for weighing the product (2) are  
3     arranged upstream of the said supply tube (210).

1           26. (Original) Machine according to Claim 18,  
2 characterized in that it comprises means (500) for weighing the bag  
3 (1) during filling.

1           27. (Original) Machine according to Claim 26,  
2 characterized in that said weighing means (500) consist of load  
3 sensors (501) connected to the bag retaining means (112).

1           28. (Original) Machine according to Claim 24,  
2 characterized in that the mouth (210a) of the tube (210) supplying  
3 the product (2) is equipped with rotating plates (210b) able to be  
4 arranged transversely with respect to the mouth (210a) of the tube,  
5 so as to cause closing thereof, and parallel thereto, so as to  
6 cause opening thereof.

1           29. (Original) Machine according to Claim 18,  
2 characterized in that it comprises means (240) for measuring the  
3 volume of the product (2) to be introduced into the bag (1).

1           30. (Original) Machine according to Claim 29,  
2 characterized in that said volume measuring means consist of a  
3 feeder screw (240) coaxially arranged inside the supply tube (210)  
4 and able to convey measured quantities of product (2) from the  
5 hopper (211) to the bottom (1b) of the bag.

1           31. (Original) Machine according to Claim 30,  
2     characterized in that said feeder screw (240) is associated with  
3     variable speed actuating means with a system for control thereof.

1           32. (Original) Machine according to Claim 18,  
2     characterized in that it is associated with air and dust suction  
3     means (300).

1           33. (Original) Machine according to Claim 32,  
2     characterized in that said suction means consist of longitudinal  
3     ducts (310) arranged in a diametral position with respect to  
4     the supply tube (210) and extending substantially over the whole  
5     axial length of the said tube.

1           34. (Original) Machine according to Claim 18,  
2     characterized in that it comprises deaeration means consisting of a  
3     plurality of pipes (1311), the bottom end part (1311a) of which is  
4     hinged with pins (1311b) able to allow expansion thereof in the  
5     transverse direction, by an amount corresponding to the width of  
6     the bag.

1           35. (Original) Machine according to Claim 18,  
2     characterized in that it is a forming/filling machine.

1           36. (Original) Machine according to Claim 35,  
2 characterized in that it comprises at least one station (F) for  
3 forming the bag (1) from a tubular material (101) unwound from a  
4 reel (101a), at least one station (R) for filling the bag with the  
5 material supplied by the filling apparatus (200), and at least one  
6 station (S) for sealing the mouth (1a) of the bag.

1           37. (Original) Machine according to Claim 35,  
2 characterized in that it comprises means (110) for conveying the  
3 bag from the forming station (F) to the filling station (R) and to  
4 the sealing station (S).

1           38. (Original) Machine according to Claim 37,  
2 characterized in that said conveying means consist of a slide (110)  
3 displaceably actuated with an alternating outward and return  
4 movement and equipped with facing pairs. of grippers (110a) for  
5 gripping the bag along the opposite vertical edges thereof.

1           39. (Original) Machine according to Claim 38,  
2 characterized in that said slide is able to impart to the grippers  
3 (110a) movements in the direction transverse to the direction of  
4 feeding of the bag (1) so as to cause opening of its mouth (1a)  
5 during travel from the forming station (F) to the filling station  
6 (R) and closing thereof during travel from the station (R) to the  
7 sealing station (S).



1           40. (Original) Machine according to Claim 38,  
2 characterized in that the displacement movements of said slide  
3 (110) are at a fixed height.

1           41. (Currently amended) ~~Method for~~ A method of filling a  
2 bag [(1)] with loose material (2), ~~characterized in that it~~  
3 ~~comprises the following steps:~~ comprising the steps of:

4           providing ~~— preparation of an apparatus [(200)] for~~  
5 filling bags [(1)] with a loose material ~~products (2);~~

6           providing ~~— preparation of a programmed quantity of said~~  
7 material [(2)] to be introduced into the bag;

8           [[-]] conveying of a bag [(1)] into a position  
9 substantially coaxial with and underneath the filling apparatus  
10 [(200)];

11           [[-]] opening a mouth of the bag [(1)] and retainig  
12 thereof the bag in said coaxial position and at a fixed height;

13           ~~— introduction of~~ introducing the apparatus (200) ~~inside~~  
14 into an interior of the bag [(1)] as far as a predefined height  
15 in the vicinity of [[the]] a bottom (lb) ~~thereof~~ of the bag;

16           ~~- start of the first bag filling step~~ starting to fill  
17 the bag from the apparatus at said predefined height;

18           ~~— simultaneous return movement upwards of~~ simultaneously  
19 returning the apparatus [(200)] , upwardly while continuing to  
20 fill the bag with said material from said apparatus towards the  
21 mouth [(1a)] of the bag [(1)] ;

22           ~~termination of~~ terminating the filling [[step]] at a  
23   predefined height of the preparation inside the bag [[1]] ; and  
24           ~~extraction of~~ extracting the filling apparatus from  
25   the bag [[1]].

26           42. (Currently amended) The method Method according to  
27   Claim 41 , ~~characterized in that~~ wherein the conveying of the bag  
28   [[1]] is performed at a fixed height.

1           43. (Currently amended) The method Method according to  
2   Claim 41 , ~~characterized in that the~~ wherein a speed of  
3   introduction/extraction of the filling apparatus [[200]]  
4   into/from the bag is controlled to be different from [[the]] a  
5   speed of [[its]] return of the apparatus upwardly ~~upward movement~~  
6   simultaneously with the filling [[step]].

1           44. (Currently amended) The method Method according to  
2   Claim 41 , ~~characterized in that~~ wherein the filling is performed  
3   by ~~means of~~ gravity.

1           45. (Currently amended) The method Method according to  
2   Claim 41 , ~~characterized in that~~ wherein the quantity of product  
3   ~~(2)~~ material to be inserted introduced into the bag is prepared  
4   using a net weight technique.

1           46. (Currently amended) The method Method according to  
2   Claim 41 ~~, characterized in that the~~ wherein a quantity of said  
3   material product ~~(2)~~ to be inserted introduced into the bag is  
4   prepared using a gross weight technique.

1           47. (Currently amended) The method Method according to  
2   Claim 41 ~~, characterized in that~~ wherein the filling is of the  
3   volumetric type.

1           48. (Currently amended) The method Method according to  
2   Claim 47 ~~, characterized in that~~ wherein the filling is performed  
3   using feeder screw means ~~(240)~~ coaxially arranged inside the  
4   filling apparatus ~~[(200)]~~.

1           49. (Currently amended) The method Method according to  
2   Claim 41 ~~, characterized in that~~ wherein the filling operation  
3   comprises ~~the following steps:~~

4           ~~[[ - ]]~~ start of a first bag filling step of the  
5   volumetric type;

6           ~~[[ - ]]~~ simultaneous return movement upwards of the  
7   apparatus ~~[(200)]~~ towards the mouth ~~[(1a)]~~ of the bag ~~[(1)]~~;

8           ~~[[ - ]]~~ termination of the said first volumetric filing  
9   step;

10          ~~[[ - ]]~~ start of a second filling step using the gross  
11   weight technique until the final programmed weight of the bag is  
12   reached; and

13                    [[-]] extraction of the filling apparatus from the bag  
14    [[(1)]].

1                    50. (Currently amended) The method Method according to  
2    Claim 49 , ~~characterized in that~~ wherein the speed of supply of the  
3    product ~~(2)~~ material during the first filling step is much greater  
4    than the supply speed during the second filling step.

1                    51. (Currently amended) The method Method according to  
2    Claim 49 , ~~characterized in that~~ wherein the first volumetric  
3    filling step is performed using feeder screw means.

1                    52. (Currently amended) The method Method according to  
2    Claim 41 , ~~characterized in that it~~ which comprises applying dust  
3    and air suction during the bag filling step.

1                    53. (Currently amended) The method Method according to  
2    Claim 41 , ~~characterized in that~~ wherein conveying of the bag  
3    [[(1)]] underneath the filling apparatus [[(200)]] is performed by  
4    means of conveying means forming part of an automatic machine.

1                    54. (Currently amended) The method Method according to  
2    Claim 53 , ~~characterized in that~~ wherein said conveying means  
3    consist of a slide [[(110)]].

1           55. (Currently amended) The method Method according to  
2 Claim 54 ~~, characterized in that~~ wherein said slide [(110)] is  
3 displaceably actuated with an alternating outward and return  
4 movement and is equipped with pairs of facing grippers ~~(110a)~~ for  
5 gripping the bag along its opposite vertical edges.

1           56. (Currently amended) The method Method according to  
2 Claim 54 ~~, characterized in that~~ wherein said slide [(110)] is  
3 able to impart movements in a direction transverse to the direction  
4 of feeding of the bag [(1)], so as to cause opening of [(its)]  
5 said mouth [(1a)] during travel from the forming station [(F)]  
6 to the filling station [(R)] and closing thereof during travel  
7 from the station [(R)] to the sealing station [(S)].

1           57. (Currently amended) The method Method according to  
2 Claim 53 ~~, characterized in that~~ said automatic machine is a  
3 forming/filling machine.